

# Computational Platform (Summary)

- Discussions within breakout group involved topics associated with general topics such as
  - Terminology, general approaches, near & long term goals for developing tools/approaches
  - Specific issues such as data management approaches; coupled/uncoupled models; data integration from characterization/scientific efforts (living models); UQ including multiple conceptual models, correlated parameters; model complexities and verification of results (whether we are there yet?); overlap in terms of specific processes and flexibility to incorporate processes

# Computational Platform

- What is each program doing to address the challenges embodied in computational platform?
  - NRAP is utilizing existing modeling/simulation tools and platforms e.g GoldSim or manual integration of models for subsystems
  - ASCEM is developing a new computational platform that enables use of ASCEM HPC simulator, advanced data management, Wiki based collaborations, range of tool sets
- What are the similarities in the needs of each program with respect to computational platform?
  - Approaches to integrate separate models (different physics, including coupled processes) for multiple sub-components governed by different physics
  - Risk assessment/decision support framework e.g. optimization of monitoring wells for CO<sub>2</sub> or pump & treat wells for EM
  - UQ
  - Data/knowledge integration approaches as new understanding/models are generated
  - Data management approaches, provenance

# Computational Platform

- What are the differences in the needs of each program with respect to computational platform?
  - Differences due to different data sources (characterization)
  - Different process models
  - Different risks
  - Different regulatory environments, stakeholders
- What are the initiatives in each program that could be exploited by the other to maximize efficiencies and promote common practices?
  - Approaches for UQ, data management/integration, visualization, transparency

# Computational Platform

- What are the initiatives in each program that could be exploited by the other to maximize efficiencies and promote common practices?

Initiatives	Priority	Timing
<b>Approaches for UQ</b> Sharing of lessons learned from ASCEM demo	1	1Q FY11
<b>Approaches for model reduction/response surface</b> Sharing of lessons learned from NRAP risk profile calculations	1	2Q FY11
<b>Data/knowledge management &amp; integration</b>	2	1Q FY11
<b>Visualization</b>	3	FY12
<b>Transparency &amp; traceability</b> •accessible tools/approaches to broader stakeholder base	4	FY12